

NL-14 / NL-14-PRO User Manual



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Preface

Congratulations and welcome to the ever growing number of Thermopatch users.

You have acquired a machine which has been manufactured by Thermopatch with the greatest possible care. We are confident that you will be enjoying the use of this machine for a long time.

Please take note of the contents of this manual to familiarize yourself with the workings and safety aspects of the machine.

This manual was written for the benefit of all users and technicians who install and maintain the machine.

You will find information on operating, safety and maintenance as well as spare parts and supplies.

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EC-Declaration of Conformity

We,

Thermopatch B.V.
Draaibrugweg 14
1332 Almere
The Netherlands

Herewith declare, on our own responsibility, that the machinery: Thermopatch Thermoseal **NL-14 and NL-14-PRO**, which this declaration refers to, is in accordance with the conditions of the following Directive(s):

2006/42/EG (Machinery directive)
2004/108/EG (EMC directive)

The Netherlands, Almere, 01-01-2011

Jan Bausch,
Director

I. Introduction

1.1 WHAT DID YOU RECEIVE?

The Thermoseal NL-14 (PRO) has been packed in a cardboard box. The following items are included:

- Thermoseal NL-14 (PRO) heatsealmachine
- Water condenser and pressure regulator
- (PRO version) Foot pedal
- Power cord
- CD with manual
- CE declaration of conformity

If one or more of above are missing, please contact your Thermopatch supplier.

1.2 YOUR SUPPLIER

Please look at our website, www.thermopatch.com to find your supplier.

E-mail: sales@thermopatch.nl

1.3 SPECIFICATIONS OF THE THERMOSEAL NL-14 (PRO)

The pneumatic machine NL-14 (PRO) is practical and universally applicable. It can be used to apply patches, textile emblems, heat seal transfers, in short all Thermopatch materials suited for marking and mending to textiles and technical fibres.

The NL-14 machine is operated by a bi-manual control and the set temperature, time and pressure are presented upon its display. The NL-14 (PRO) is to be operated with the fitted foot pedal.

The Thermoseal NL-14 (PRO) has been manufactured in accordance with the European guideline for Machines, 2006/42/EC and the EMC guideline 2004/108/EC. This is declared with a general declaration added to this manual and uniquely serial number based to this machine.

Specifications:

Power consumption during start-up	1000 Watt/230 Volt
Power consumption in stand-by mode	10 Watt/230 Volt
Power supply	230 Volt
Temperature adjustable to maximal	230°C
Safety temperature set to maximal	270°C
Height (open)	350 mm
Height (closed)	245 mm
Width	265 mm
Depth (including connections)	520 mm
Nett weight	20 kg
Sealing pad, size	150 x 125 mm
Fuses	2 x 6,3 A (slow)
A-weighted noise level	< 70 dB (A)
Pre-pressure	< 6 bar
Sealing pressure	4-6 bar
Safety settings (min/max)	3,8 / 6 bar
Compressed air usage (per cycle, 5 bar)	+/-1 litre
Sealing times, adjustable from - to	1 – 60 seconds

Attention!

To obtain the required sealing pressure, the NL-14 (PRO) has to be connected to a compressor with a working pressure of at least 6 bars. The air has to be clean and dry.

1.4 SAFETY

At normal usage no problems are to be expected. Regardless that, we state underneath a few pointers which will limit existing risks to a minimum.

- Unplug the machine from the wall socket whenever you are maintaining or cleaning the machine.
- Make sure there is enough working space around the machine. Although the heat radiation of the press is very low, it is still necessary to have enough room for cooling down. Extensions and connections must not get snagged.
- Avoid contact with the press arm and the heating element.
- Pull the fabric tightly over the sealing pad.

1.5 CONDITIONS OF WARRANTY AND PRODUCT LIABILITY

Thermopatch points to its warranty and product liability conditions as laid down in our sales conditions. These can be obtained at your Thermopatch supplier.

II. Installation

2.1 INSTRUCTION FOR HANDLING

The NL-14 (PRO) has been packed in a cardboard box. If you need to relocate the machine at a later point, we advise you to pack the machine in a similar fashion. Let the machine cool down completely before packing and moving it.

2.2 INSTALLING AND CONNECTING THE NL-14 (PRO)

Take the Thermoseal NL-14 (PRO) from its box and place it onto a stable worktop near an earthed wall socket. Connect the machine with the supplied power cord to the electrical current (230 Volt, alternating current). The NL-14 is earthed and provided with two fuses (6,3 Amps, slow).

2.3 ASSEMBLY

To ensure a problem-free operating of your NL-14 (PRO), it is essential to work with dry, clean compressed air. The supplied pressure regulator with water condenser is only an added protection of the machine. The user has to make sure that the pressure on the machine does not exceed 6 Bars. Connect a 6 mm air tubing with the compressor or the local compressed air system and connect this subsequently to the water condenser / pressure regulator mounted on the NL-14 (PRO).

The NL-14-PRO is fitted with a foot pedal for its operation. Connect the foot pedal by inserting the connector into its slot, which is placed underneath power entry on the back of the machine. Fasten the securing ring after inserting the connector.

III. Operating the NL-14 / NL-14-PRO

3.1 STARTING UP

You can start operating the NL-14 (PRO) as soon as it is connected to the electricity mains.

Set the air pressure.

Take note of the conditions and working instructions as stated in chapter 2.

Switch on the NL-14 (PRO) by pressing the on/off (I-0) switch, which is placed on the back of the machine, to "on (I)".

Wait until the set temperature has been reached, which will take about one minute.

3.2 FUNCTIONALITY

When activated, the control unit's display will show an icon of a fox. The lower part of the display will show a version number of the firmware. In this case this will be fox V01.XX. This image will disappear after a few seconds after which the display will show which setting was last applied.

When faults are detected at starting up the NL-14 (PRO), these will be shown in the display. The machine will not warm up.

See page 17 for the fault codes; faults will have to be solved first before it is possible to operate the machine.

Usually the machine will show in its display only the actual temperature. When the NL-14 (PRO) is ready for use, temperature, pressure and time will be shown in the display.

The NL-14 (PRO) has been supplied with the following standard settings:

Sealing time	12 seconds
Temperature	204 °C
Power safe	30 minutes
Minimal – Maximal pressure	3.8 - 6.0
Air pressure	4.0 - 6.0 bar

The setting of the sealing time and temperature is dependant on the type of job and materials used. These can be adjusted by the operator.

3.3 SAFETY

The NL-14 has been fitted with a bi-manual control. The two push-buttons are mounted on either side of the machine. Both need to be pressed simultaneously for about two seconds; otherwise the machine will not close.

The NL-14 also has a safety feature that prevents mechanical pressure to be executed, when the press arm cannot close (to about 8 mm above the sealing pad).

The NL-14-PRO has been fitted a foot pedal therefore the machine has an added orange pressure sensitive safety rack, which is mounted on the sealing head to prevent the machine from closing when it detects an obstruction.

The sealing cycle can be interrupted at any time by pressing any switch on the display.

At the end of the sealing cycle an acoustic signal will sound.

A safety thermostat has been integrated into the heating element, which interrupts the heating circuit when the temperature runs too high. This switch will cut off the power at approximately 270 °C. After the machine is switched off and has cooled down to a normal working temperature, the machine is again ready to be operated.

When the actual temperature falls 15 °C outside the set temperature, the NL-14 (PRO) cannot be operated.

3.4 DISPLAY



-  Automat on/off
-  Temperature icon
-  Time icon
-  Pressure icon
-  Cursor up
-  Cursor down

The display shows:

The set temperature	204 °C
The applied pressure	5 bar
The set time	12 seconds
Day counter	001
Machine is in operational mode	Pad lock symbol is closed

By using the button "AUTO" the NL-14 (PRO) can be switched (⏻) into or out (⏻) of the operational mode. Only when set to operational mode (⏻), adjustments to the settings can be made.

3.5 TEMPERATURE SETTINGS

The standard factory setting is 204 °C. When switched to the stand-by mode, the heating element is switched off. Stand-by is activated when the machine is left unused for more than 30 minutes.

The working temperature is adjustable from 20 °C – 230 °C. The temperature setting can be adjusted by removing the machine from the auto mode (⏻). By pressing the icon for temperature this will appear in the display and can be adjusted by pressing the – or + keys.

Do not touch any keys for about 3 seconds so the setting can be entered into the memory.

3.6 TEMPERATURE CHECKS

The temperature is shown continually in the display.

If required, you can do additional checks of the actual temperature between the sealing platens. This can either be done by a laser gun or by using Thermolabels. Both can be obtained through your Thermopatch supplier.

3.7 SETTING AND ADJUSTING THE PRESSURE

The machine is set to a working pressure of 5 Bars. If required, the pressure can be adjusted by turning the knob of the pressure regulator after which the chosen pressure will be shown on the display.

The NL-14 (PRO) has a pressure guarding system. This is set to a maximum of 6 Bars and a minimum of 2,5 Bars. At too high or too low pressure, the machine cannot be operated and an alarm indicator will show on the display.

The setting of the lower setting of the air pressure is done by pressing the icon pressure after which the lower setting appears on the display. This can be adjusted by pressing the – or + keys. When the lower pressure is set to 0 (zero), the pressure guarding system is switched off.

The upper setting of the air pressure is done by pressing the icon pressure twice, after which the upper setting appears on the display. This can be adjusted by pressing the – or + keys.

To adjust the closing and opening speed of the sealing arm can be adjusted by setting two throttle valves. To be able to do this, the left side of the cover has to be removed.

Attention!

Remove the plug from the wall socket before removing any screws.

The throttle valves are situated on the back of the machine; one is for adjusting the upward speed, the other for adjusting the downward speed.

By careful turning, the required corrections can be done:

- Before correcting, loosen the lock nut and fasten again after the correction is done.
- By turning the knob of the respective throttle valve to the right, the press arm will open or close slower, by turning it to the left it will open or close faster.

3.8 TIME SETTINGS

The standard time setting of the NL-14 (PRO) is set to 12 seconds. For adjusting this, remove the machine from its auto mode (🔒).

By pressing the time icon, the set time will appear on the display. By pressing the + or – key, this setting can be adjusted. Do not touch any keys on the display so the set time can be stored into the memory.

The sleep-time delay can be set by pressing the time icon twice, after which the delay time appears onto the display, in minutes. By pressing the + or – keys, adjustments can be made and the machine will switch itself off after inactivity during the set time.

By pressing one of the push-buttons on the side, the machine can be quickly switched on again. When the set temperature is reached the machine can be re-activated again by pressing both push-buttons.

3.9 READING THE COUNTERS

By pressing the temperature icon and the + key simultaneously for 3 seconds, **the total counter** will appear on the display. By pressing – or + keys, the counter can be set to 0 (zero).

By pressing the pressure icon and – key simultaneously, **the machine counter** will appear on the display. This counter cannot be reset.

The **day counter** is reset automatically to 001 after the machine is switched off.

IV. Maintenance

4.1 GENERAL

Ensure that the cycle of the machine is finished, before working on the machine.

Depending on the planned job you wish to perform, respectively the power – and air supply can be disconnected.

Mechanism:

The air cylinder and other parts of the machine are maintenance free and the bearings are self lubricating. The condition is that the heat seal machine is supplied with clean and dry compressed air. The mounted water condenser and pressure regulator is an added safety feature. Arrange for your machine to be maintained by qualified staff or a maintenance service. Moisture and unclean air disrupt the self lubricating properties of the air cylinder.

Ensure that the pre-pressure does not exceed 6 Bars.

Temperature:

The temperature of the heating plate can be tested regularly by using Thermolabels or a laser gun. Both can be obtained at your Thermopatch supplier.

Teflon cover:

The Teflon cover of the heating plate should always be clean to prevent labels or patches sticking to it or soiling the heat seal products.

Clean the cover with a dry, clean cloth when the machine is still warm. Repeat this several times a day when using the machine intensively.

Damaged or soiled Teflon covers need to be replaced. These can be obtained at your Thermopatch supplier.

Sealing pad:

Clean the sealing pad while it is still warm. Use a clean, lint free cloth to clean it regularly. Do not heat seal on zippers, staples, buttons etc. to avoid damage by puncturing or tearing the sealing pad. Never use solvents to clean the sealing pad.

Replacing the Teflon cover or Sealing pad:

The Teflon cover or the Sealing pad should, depending on their condition, be replaced regularly. When performing the replacement, make sure the machine has cooled down sufficiently.

Peel off the self-adhesive Teflon cover (like a used band-aid). Then carefully remove any glue residue that was left behind. Make sure that all residue is removed and the metal surface is clean, before placing the new cover, without bubbles.

Teflon covers and sealing pads can be obtained at your Thermopatch supplier.

Water condenser and pressure regulator:

The water condenser and pressure regulator needs to be emptied of collected water on a daily basis. This can be done by pushing the pin at the bottom of the filter.

Cleaning:

Apart from taking care of the outside of the machine, the inside needs cleaning periodically. Undo the screws of the back cover and remove the housing.

Attention!

Remove the plug from the wall socket before removing any screws.

4.2 REPLACING THE FUSES

Ensure that the machine is disconnected from the electrical power and is unplugged from the wall socket.

Replace the fuses on the back of the machine at the power entry.

Before re-connecting the power cable into the wall socket, make sure the net entry shows the right tension setting (230 V or 110 V). If the wrong setting is shown, remove the fuses and turn the fuse holder 180°. After replacing the fuses, the machine can be connected and switched on again.

Attention!

Check that the right tension setting is visible, before switching on the machine again!

V. Possible faults

Code	Description
01	Temperature sensor or broken cable
02	Shortcut temperature sensor
03	Heating element broken or broken cable
04	Pressure setting too low
05	Pressure setting too high
06	Broken cable or safety switch activated

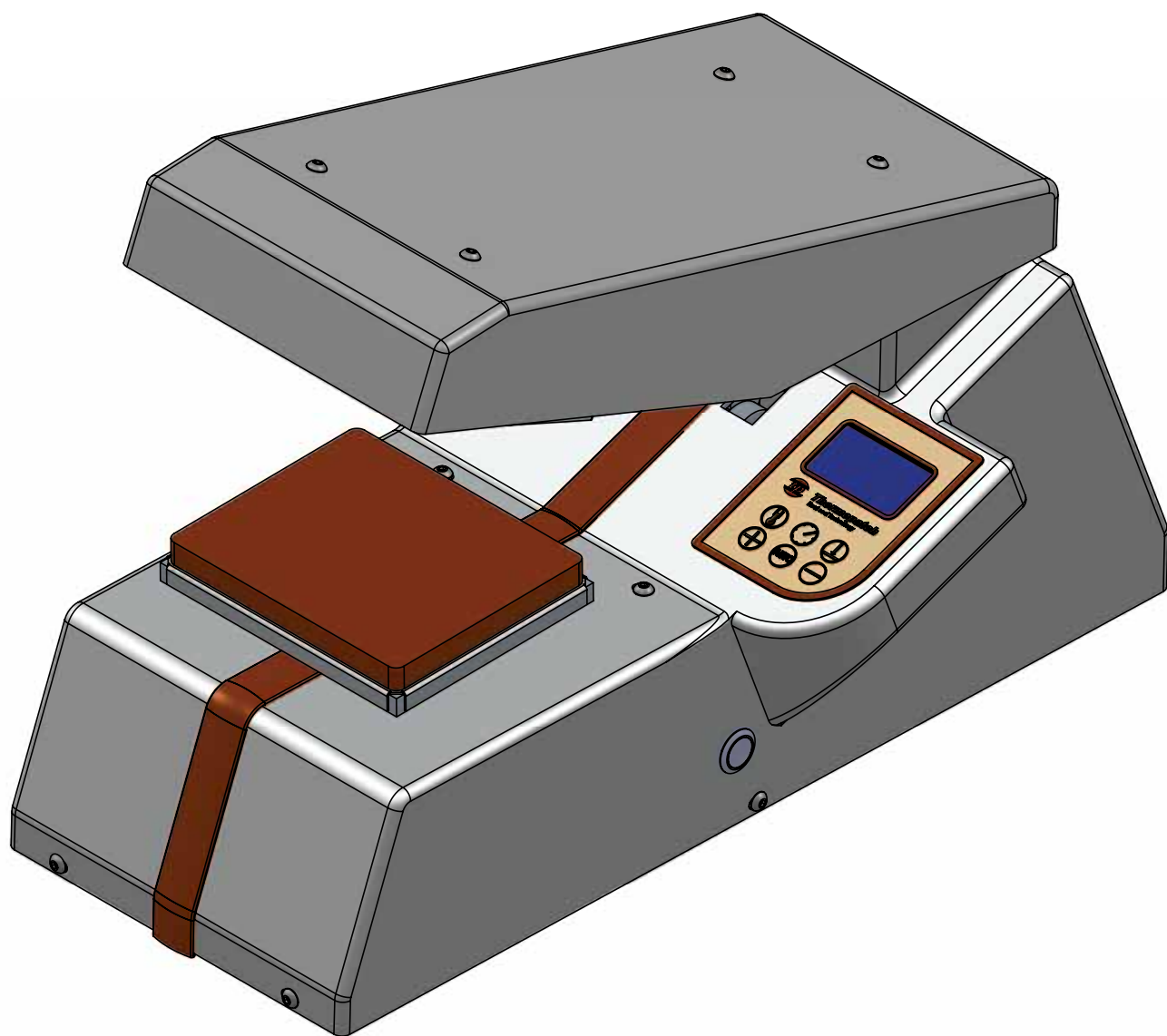
Fault	Possible cause	Solution
Heating plate stays cold.	Temperature sensor defect.	Replace
Heating plate stays cold.	Temperature sensor defect.	Replace
Display shows too low pressure (alarm).	Pressure too low.	Set pressure to right setting.
Display too high pressure (alarm).	Pressure is too high.	Set pressure to right setting.
After the heating up phase, the display shows too low pressure (alarm) at sealing.	Pressure too low, possible snagging of the air supply.	Set pressure to right setting. Check air supply.
Machine opens too soon.	The set values are not correct.	Check by pressing the control key. Place the textile in a better fashion.
Machine will not close.	1. Bi-manual control was not pushed in long enough. 2. Pressure too low or too high. 3. Machine has not reached the set temperature yet.	Check Check Check
Machine closes but will not seal. The press arm is pushed up by the sealing pad.	The placed textile is too thick, the machine cannot lock.	Check settings; check if textile can be placed in a better fashion or for suitability.

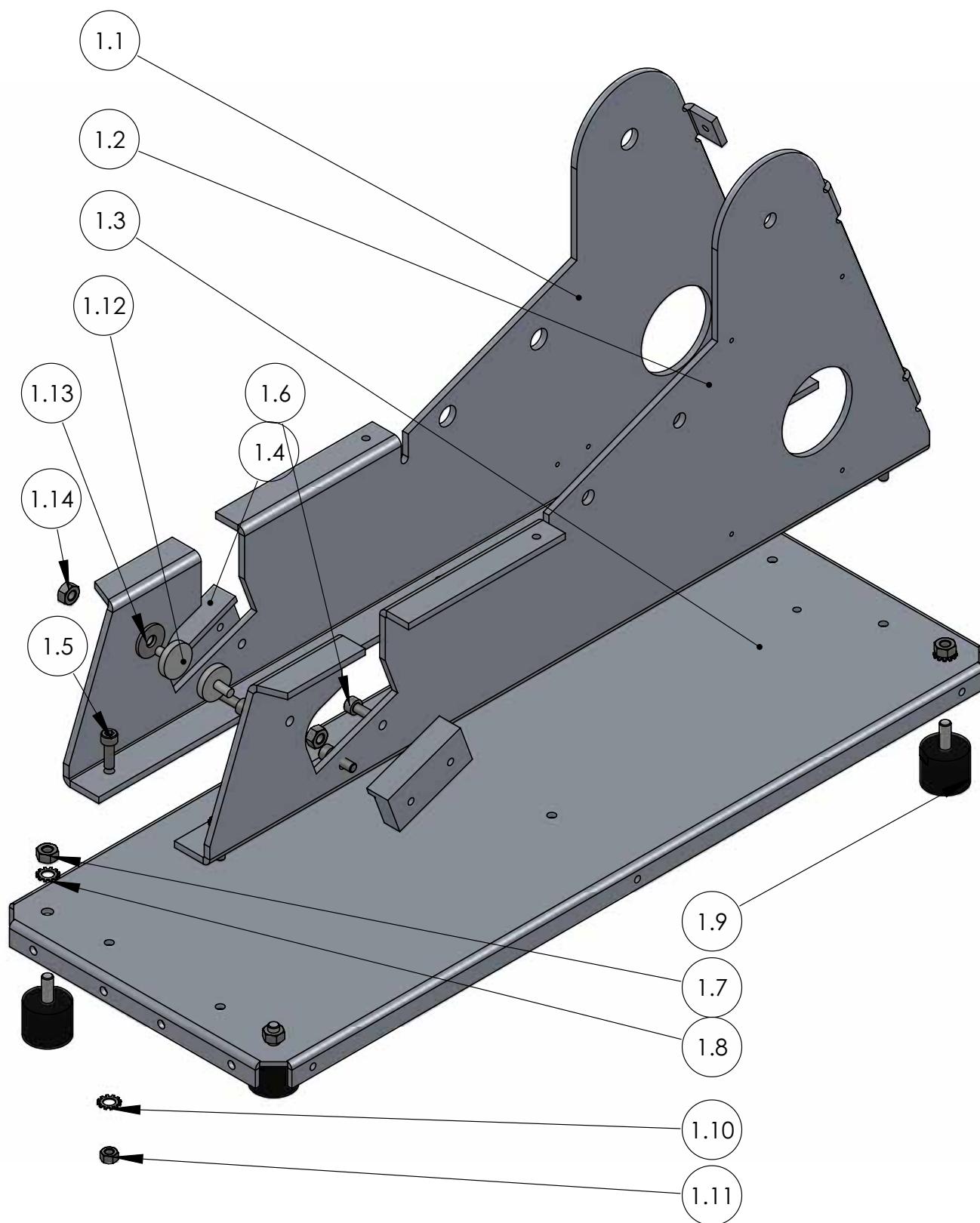
VI. Supplies

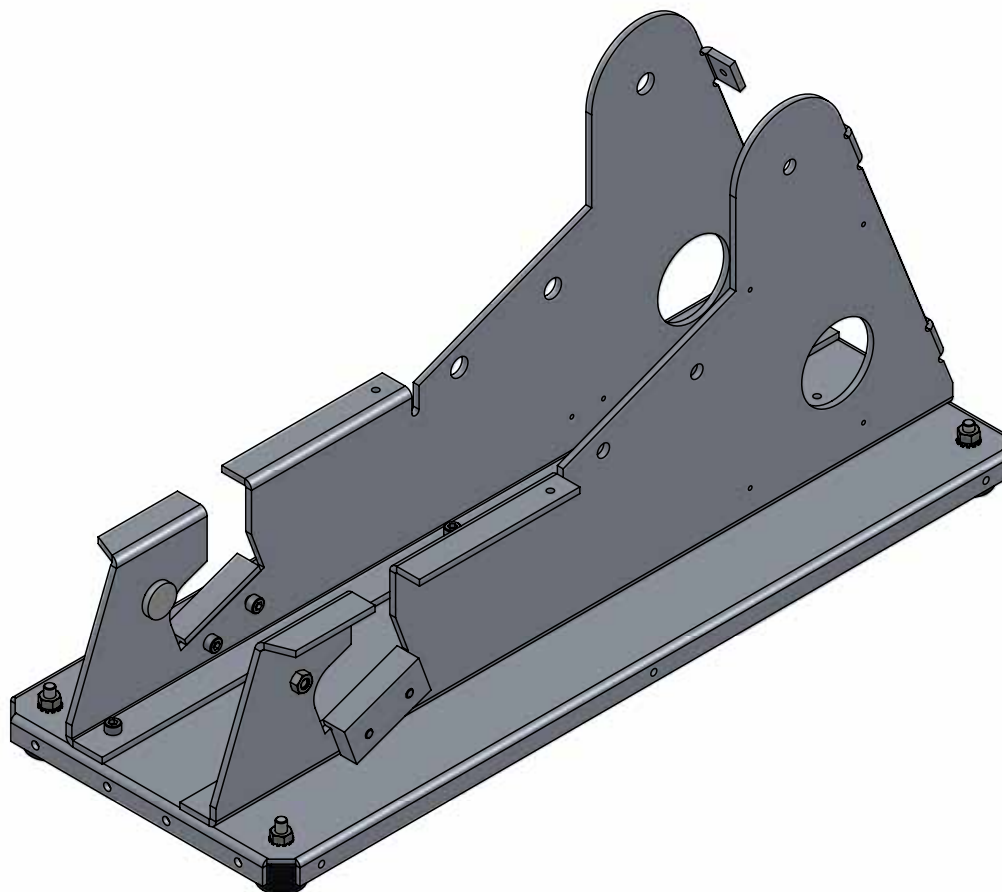
6.1 MOST COMMONLY USED PARTS

- Sealing pad with thin metal plate, self-adhesive
143 x 117 mm SPA109001
- Teflon cover, self-adhesive
143 x 117 mm SPA109002
- Fuses
2 x 6,3 A (slow) SPA105009

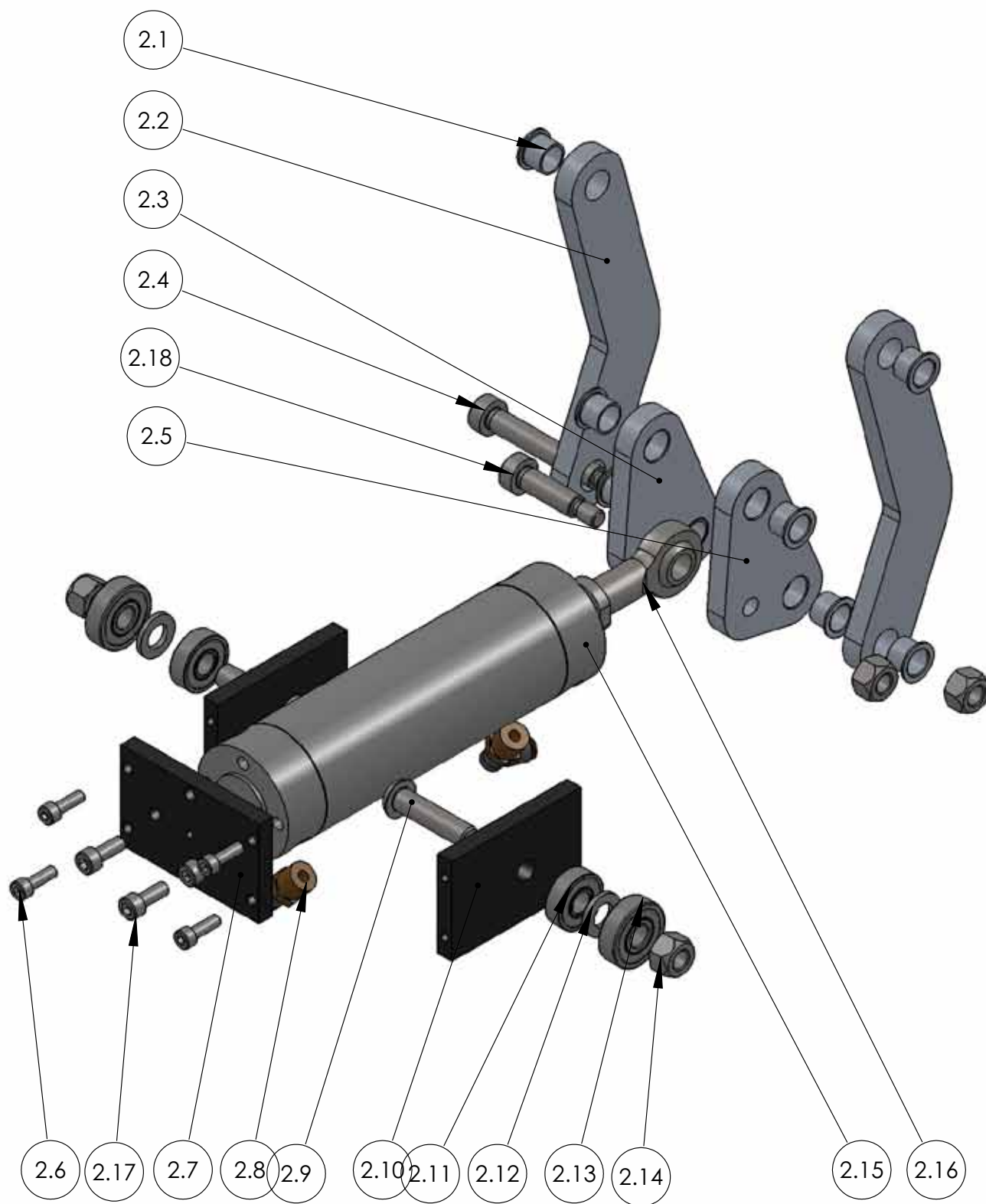
VII. Drawings, parts and schematics

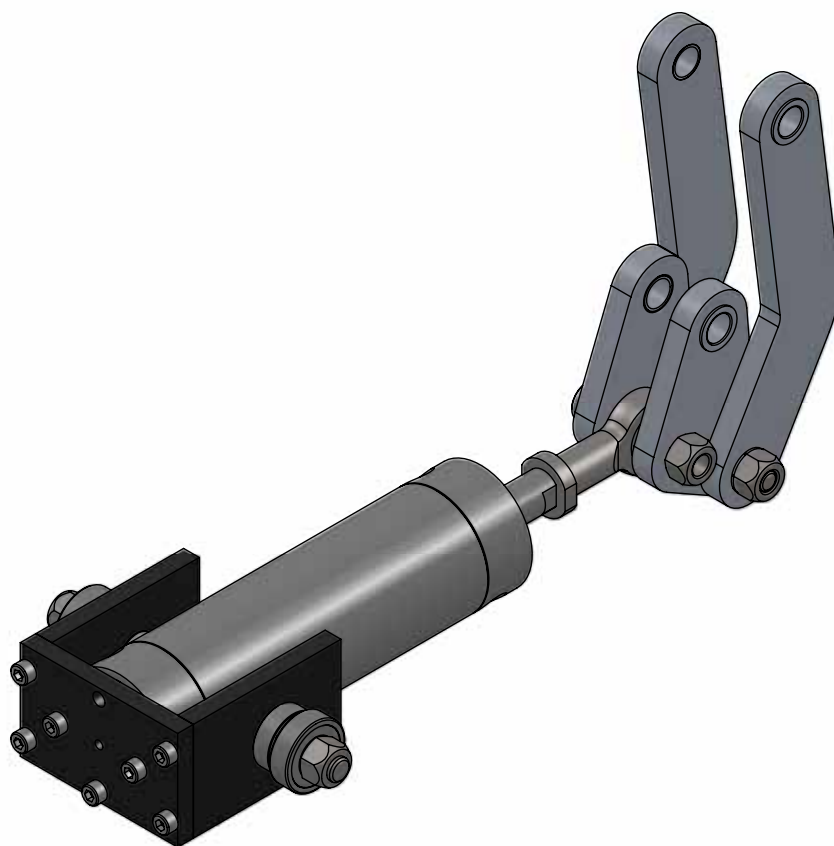




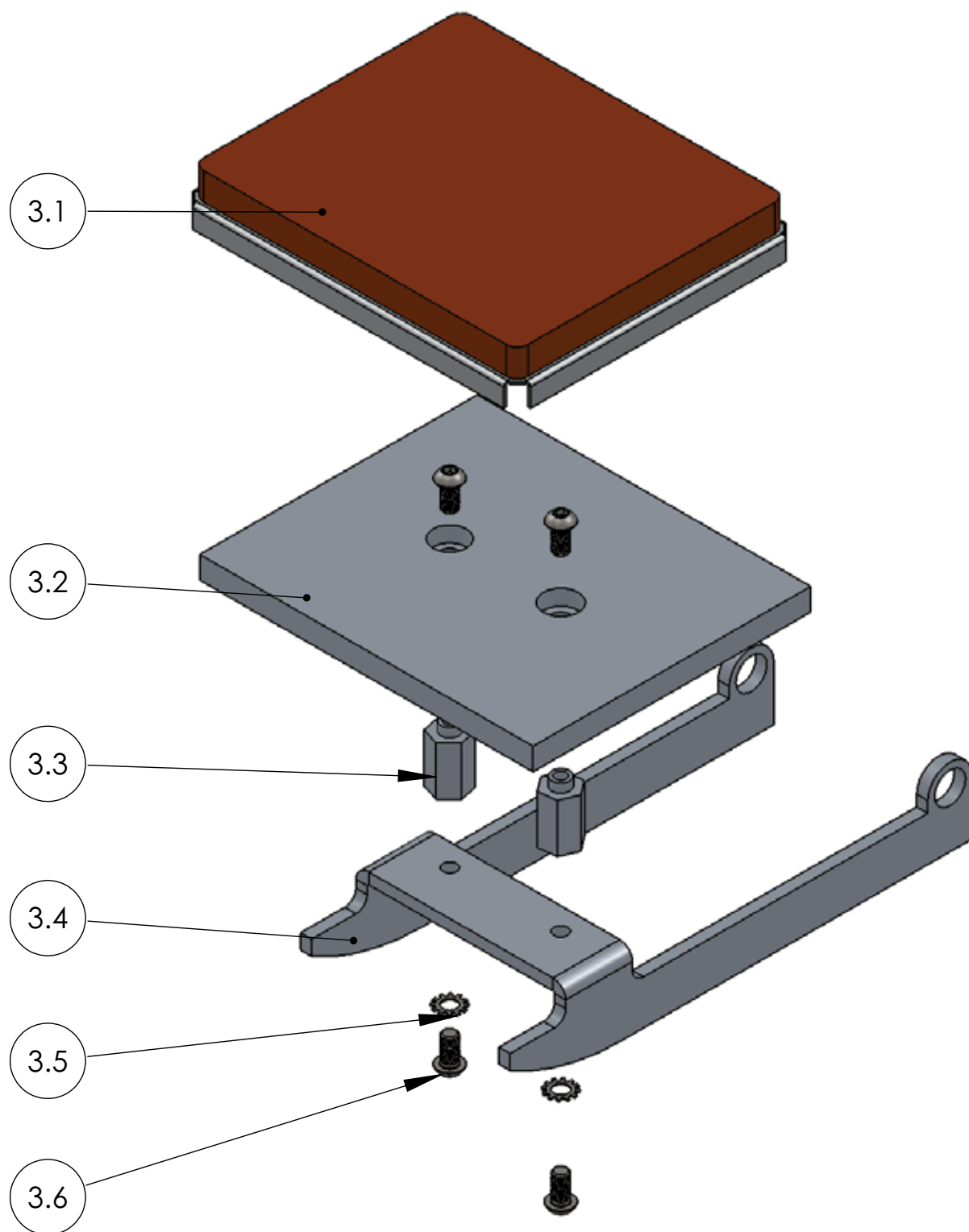


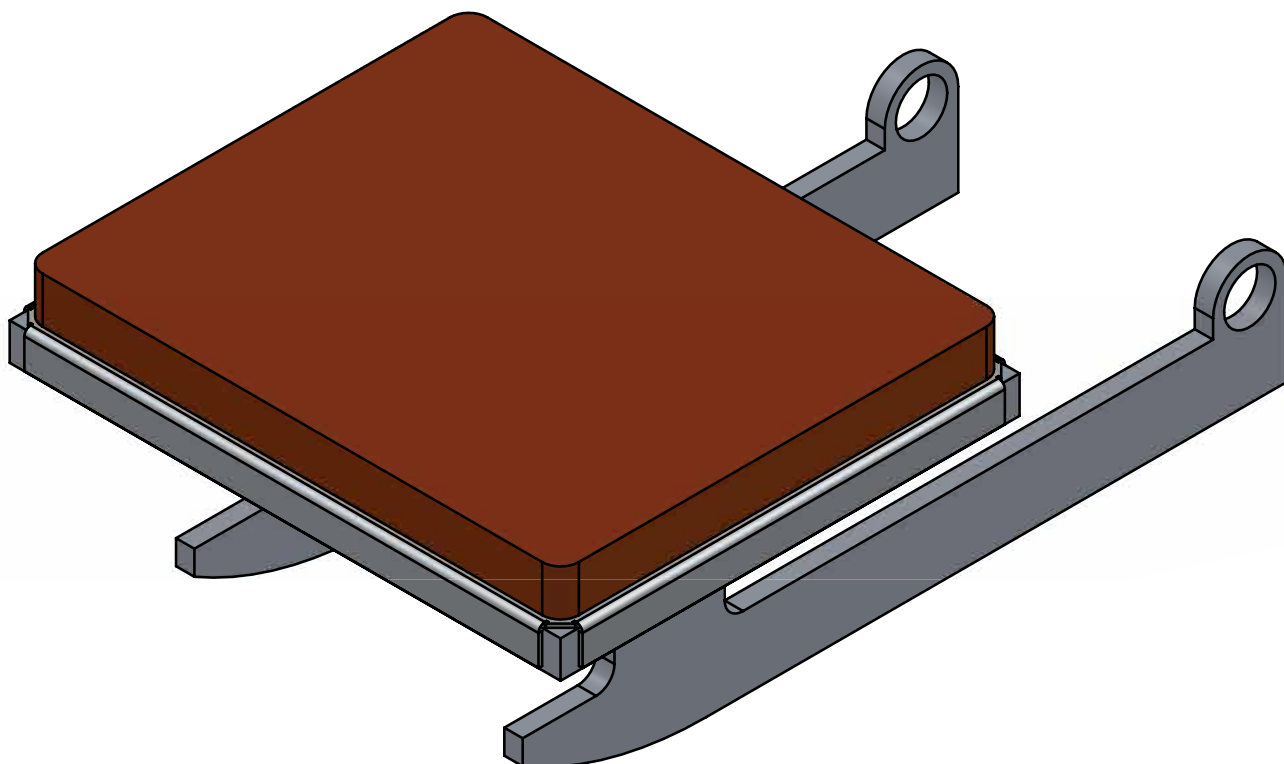
NO.	DESCRIPTION		QTY.	ART. NR.
1.1	Side plate left		1	SPA14003
1.2	Side plate right		1	SPA14004
1.3	Bottom plate		1	SPA14007
1.4	Running block		2	SPA14008
1.5	Socket head screw	M5 X 15	6	DIN 912
1.6	Socket head screw	M5 X 20	4	DIN 912
1.7	Nut	M6	4	DIN 934
1.8	Knurled ring	6 mm	4	DIN 6798A
1.9	Rubber foot	25 x 20	4	SPAPEN01-03
1.10	Knurled ring	5 mm	6	DIN 6798A
1.11	Nut	M5	6	DIN934
1.12	Knurled screw	M6	2	DIN653
1.13	Washer	M6	2	DIN125A
1.14	Nut	M6	2	DIN934



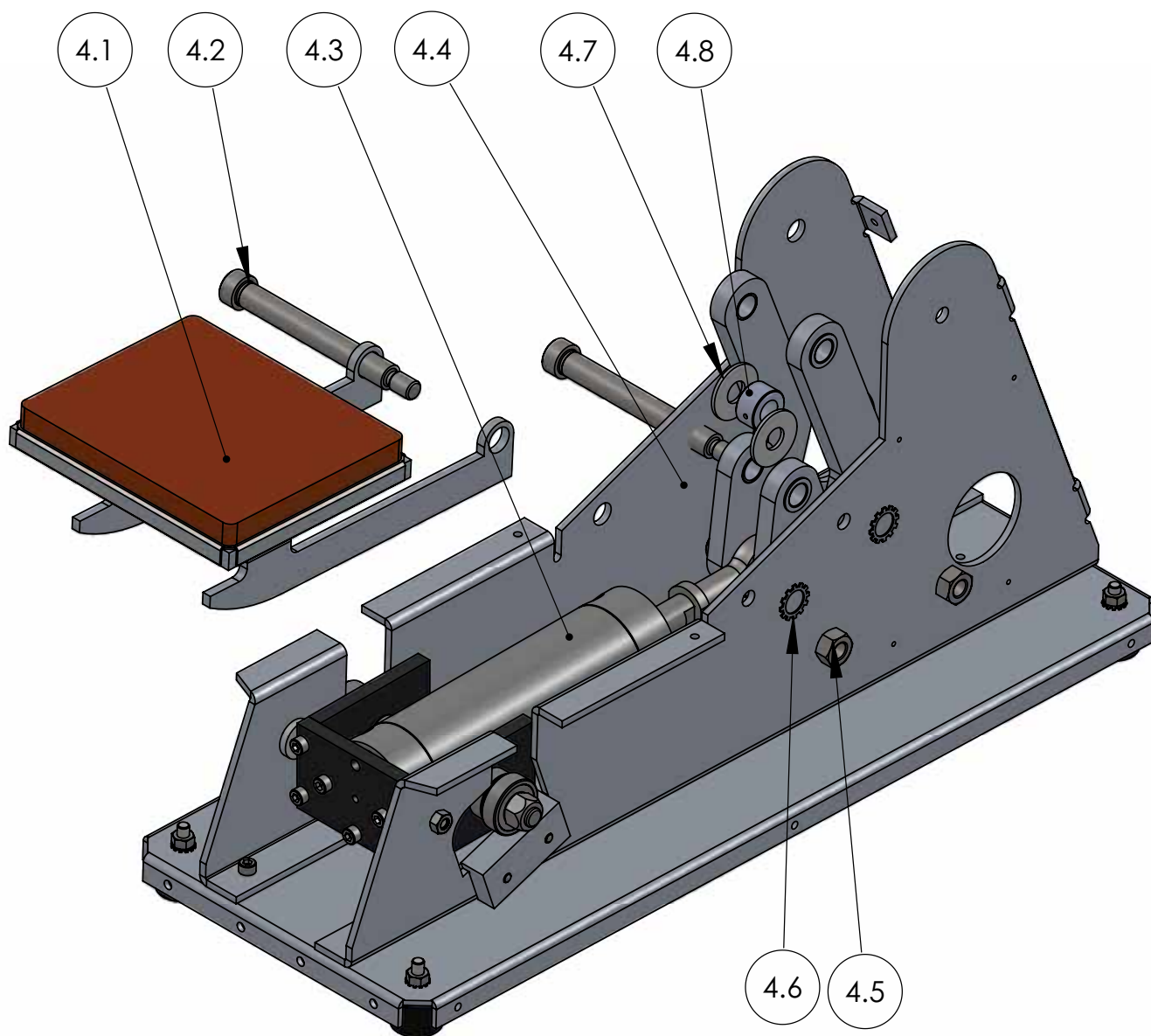


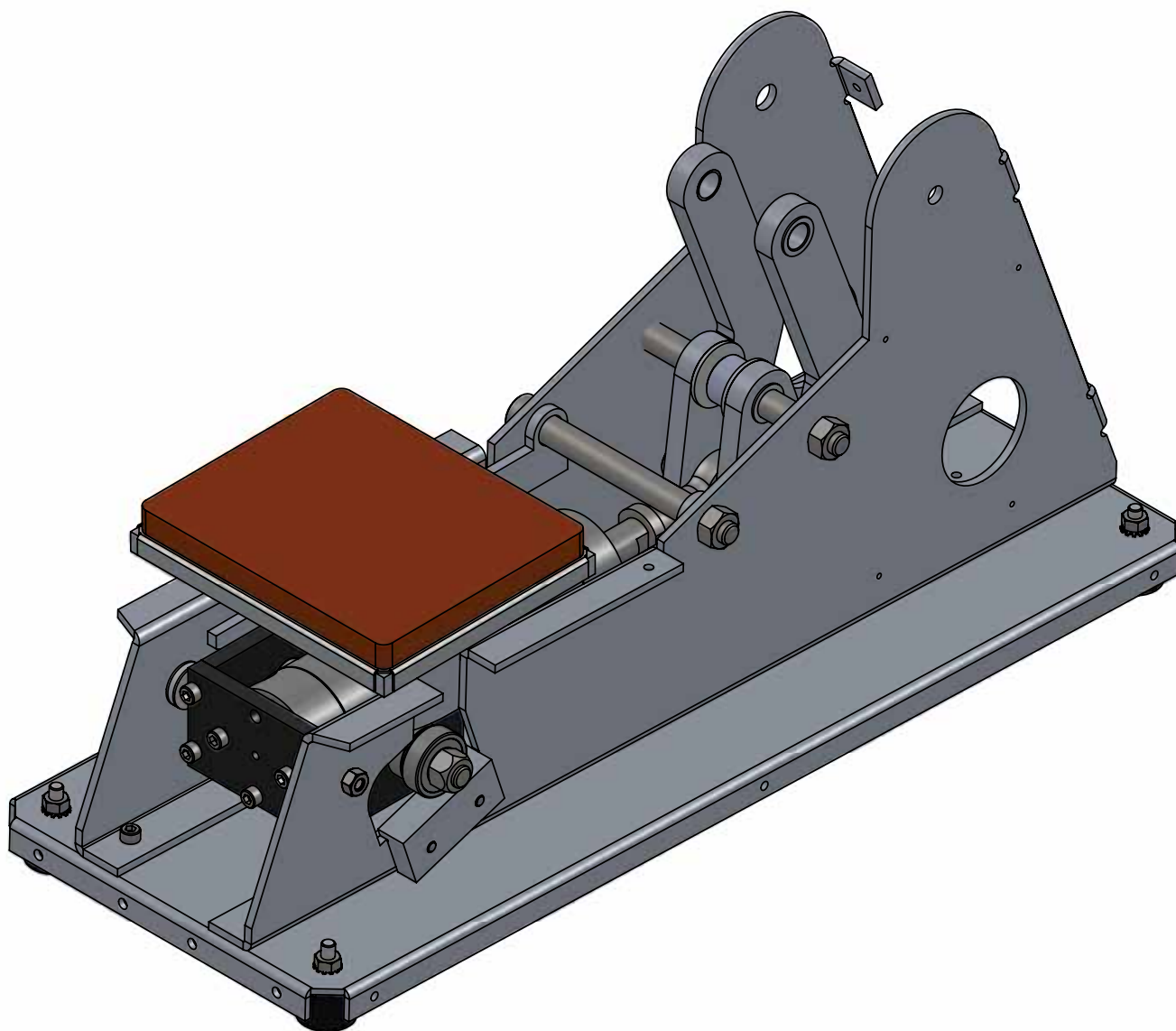
NO.	DESCRIPTION		QTY.	ART. NR.
2.1	Collar bearing	PAF 12090 P10	8	SPAPEN 02-03
2.2	Linking piece		2	SPA14005
2.3	Linking Triangle left		1	SPA14010
2.4	Adjusting bolt	M10, Shaft 50	1	ISO 7379
2.5	Linking Triangle right		1	SPA10 10-015
2.6	Socket head screw	M5 X 16	4	DIN 912
2.7	Cylinder mounting plate		1	SPA14009
2.8	Knee	1/4" X 4 mm	2	SMC
2.9	Round head screw	M10 X 40	2	ISO7380
2.10	Bearing plate		2	SPA14010
2.11	Roller bearing	26 mm	2	6000-2RSR
2.12	Washer	10 mm	2	DIN 125A
2.13	Roller bearing	30 mm	2	62200-2RSR
2.14	Nylock nut	M10	2	DIN 985
2.15	Air cylinder	RT/57250/M/100	1	SPA14025
2.16	Fork eye	QM/8040/32	1	SPA14025A
2.17	Socket head screw	M6 X 20	4	DIN 912
2.18	Adjustment bolt	M10, Shaft 30	1	ISO 7379



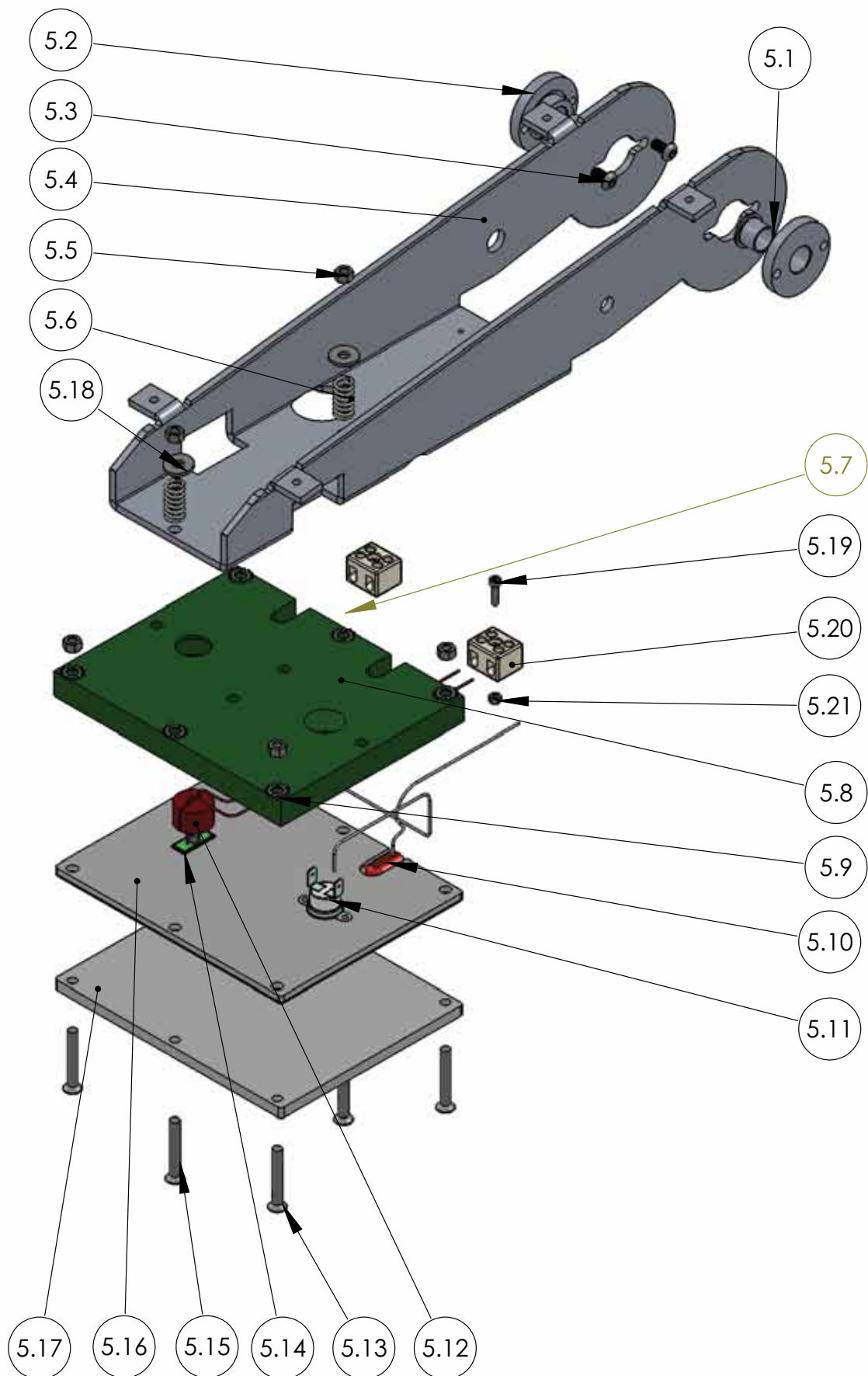


NO.	DESCRIPTION		QTY.	ART. NR.
3.1	Sealing pad, silicone		1	SPA109001
3.2	Support plate		1	SPA14012
3.3	Support bushing		2	SPA14011
3.4	Press lever		1	SPA14002
3.5	Knurled ring	M6	2	DIN6798A
3.6	Socket head screw	M6 x 15	4	DIN 912

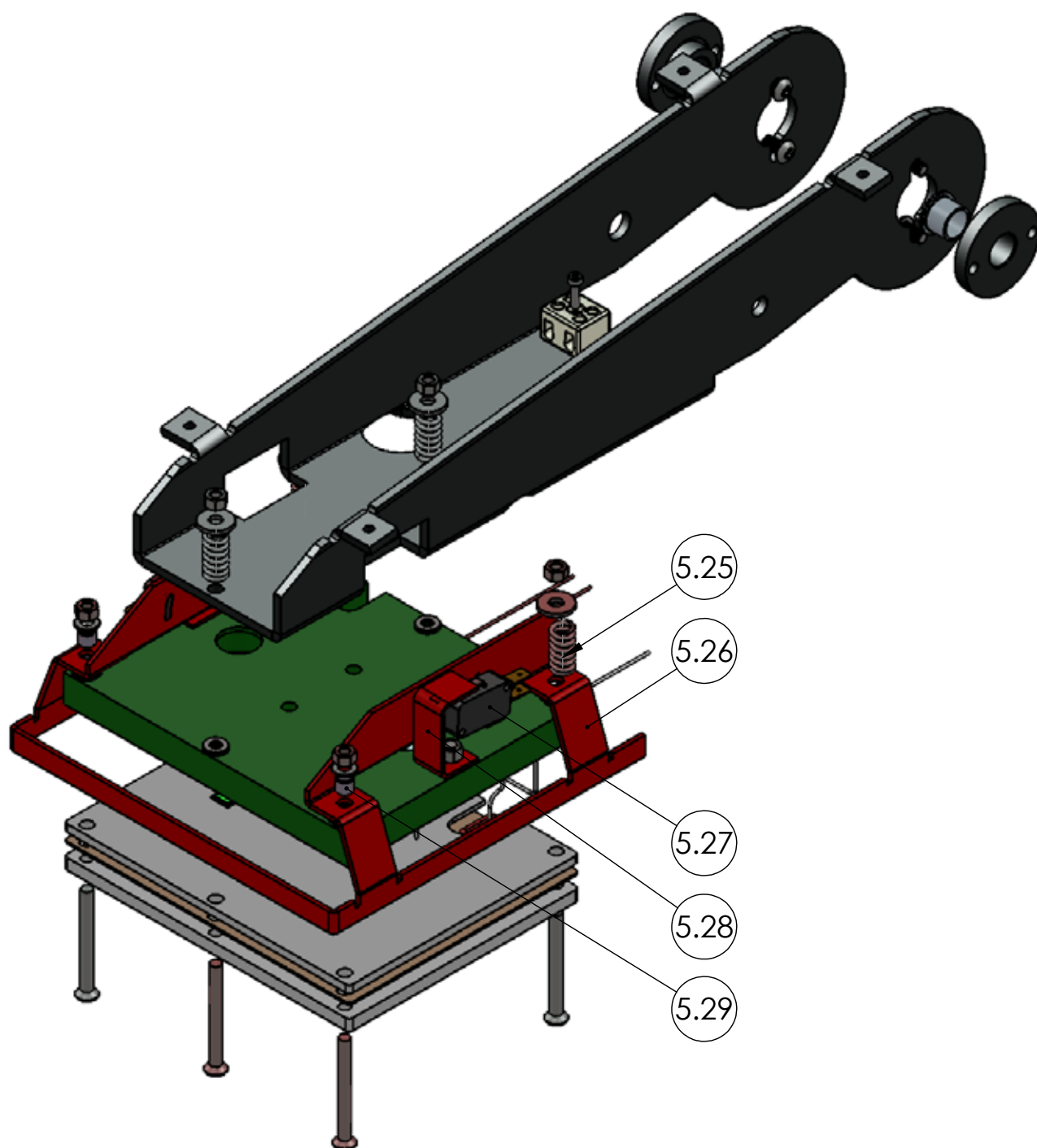


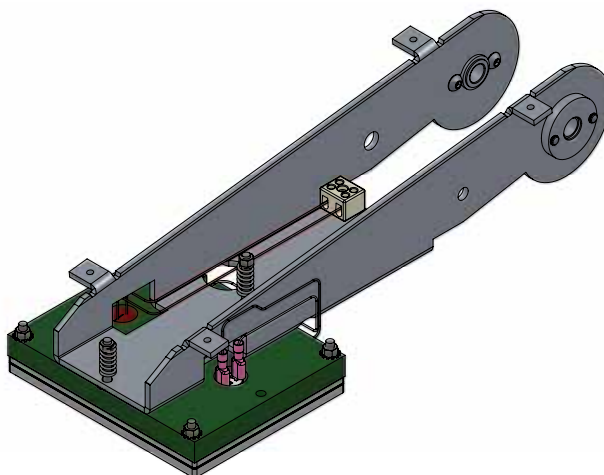


NO.	DESCRIPTION		QTY.	ART. NR.
4.1	Assembly 3			Page 27
4.2	Shoulder bolt	M10, Shaft 100 mm	2	ISO7379
4.3	Assembly 2			Page 29
4.4	Assembly 1			Page 31
4.5	Nylock Nut	M10	2	DIN934
4.6	Knurled ring	10 mm.	2	DIN6798A
4.7	Plastic ring	12 mm.	2	DIN125-A
4.8	Adjusting ring	12 mm.	1	DIN705A/916

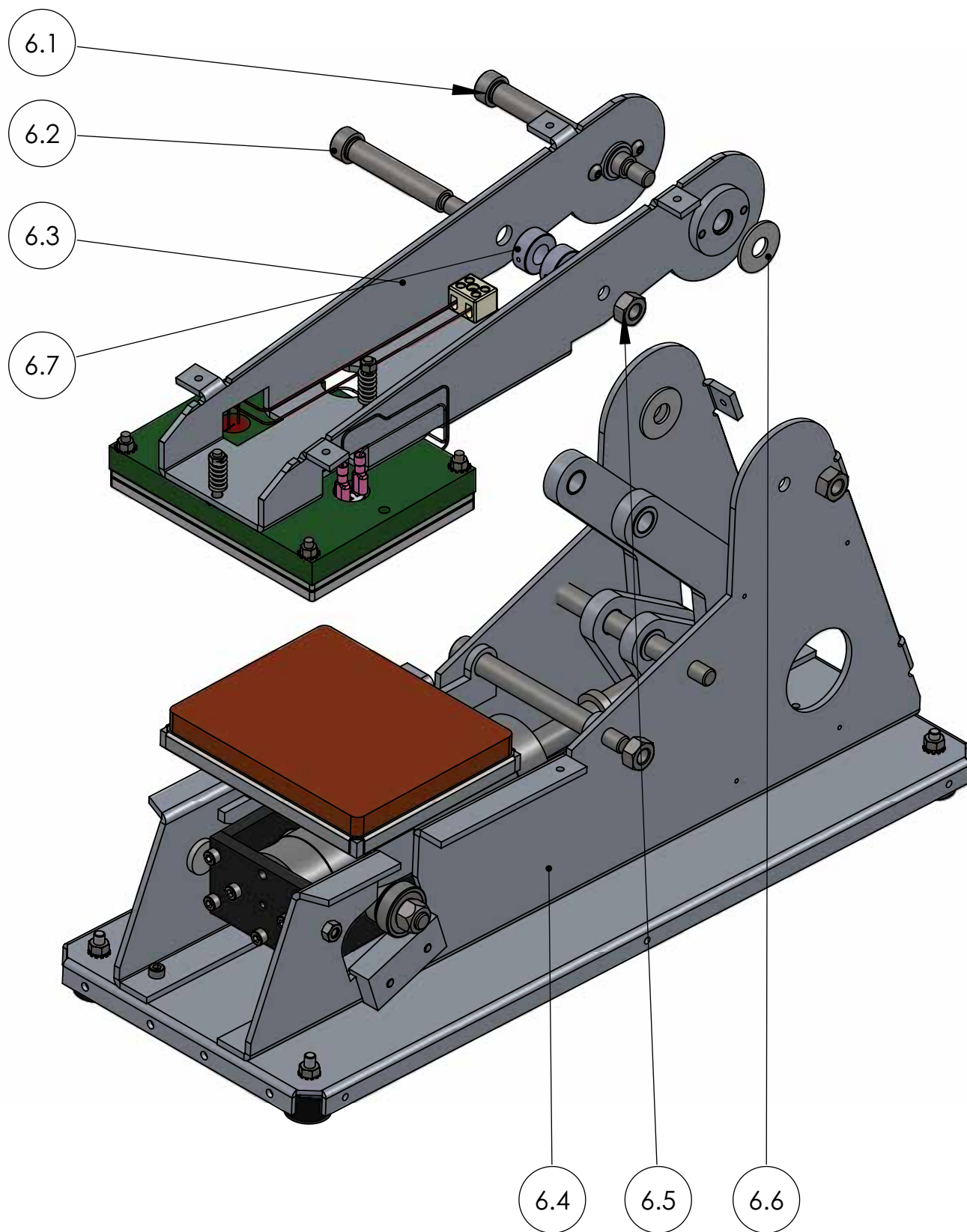


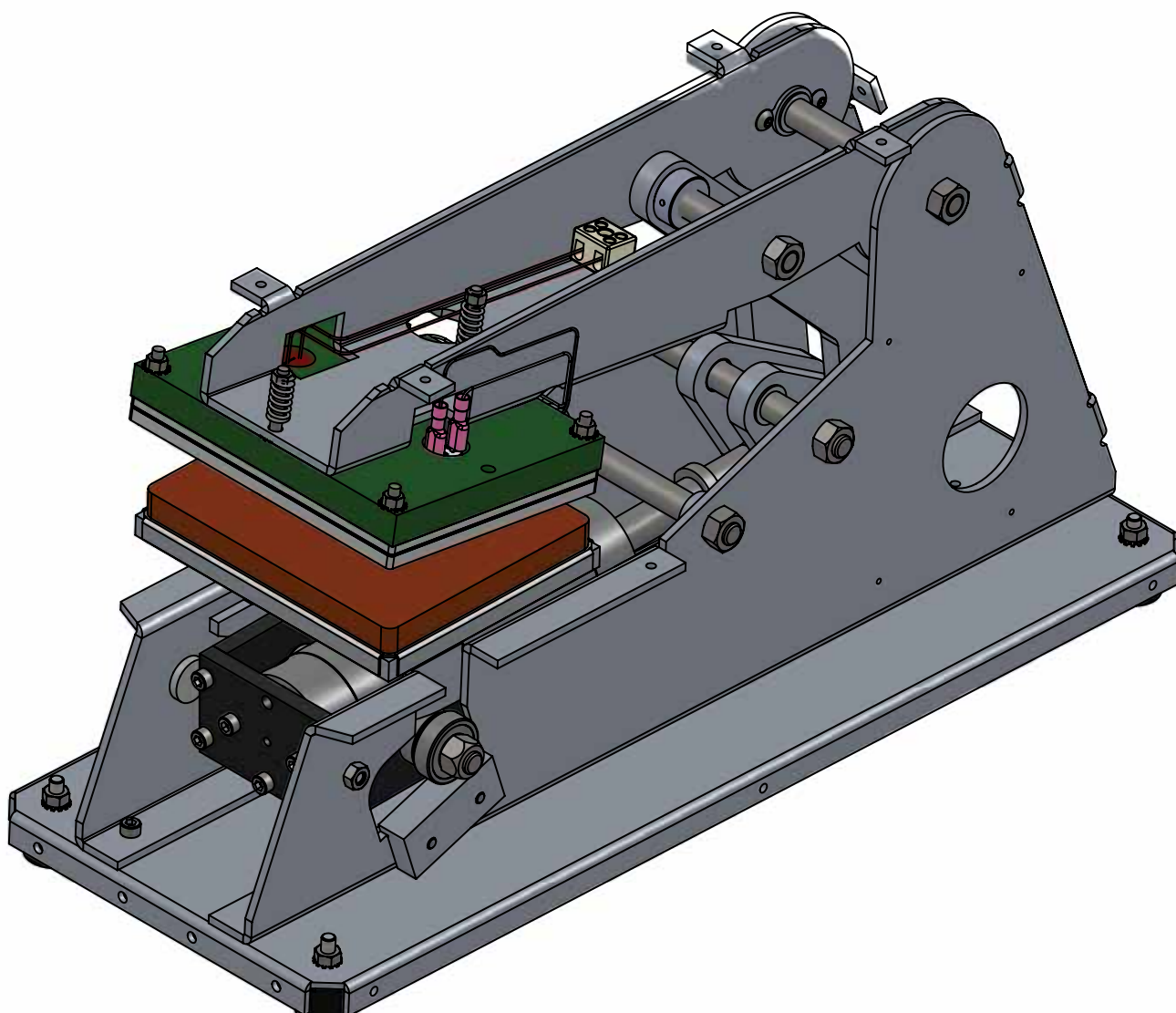
Only for NL-14-PRO



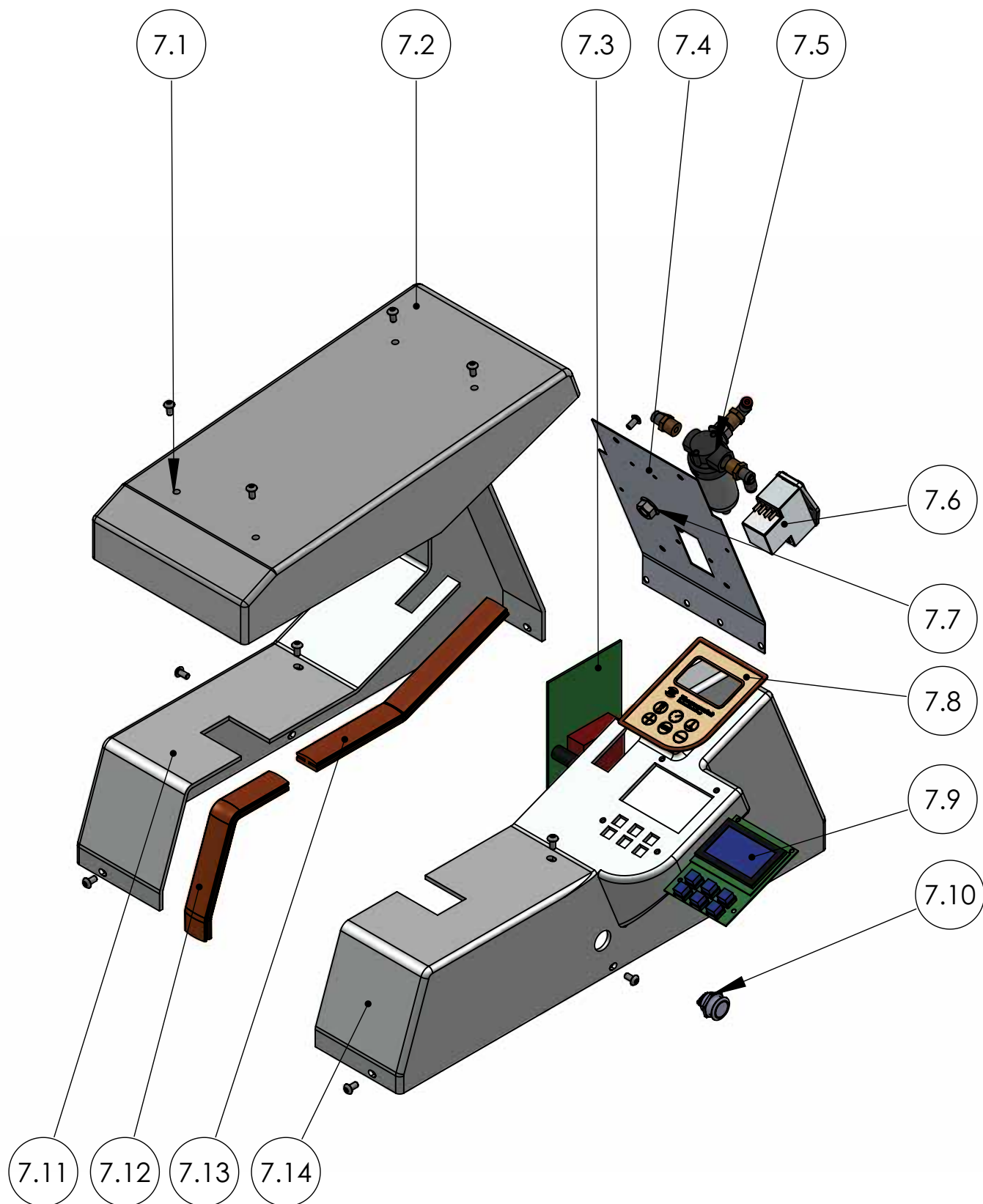


NO.	DESCRIPTION		QTY.	ART. NR.
5.1	Collar bearing	PAF 12090 P10	2	SPAPEN0203
5.2	Bearing block		2	SPA14013
5.3	Socket head screw	M6 X 10	4	DIN 912
5.4	Press arm		1	SPA14001
5.5	Nylock nut	M5	2	DIN 985
5.6	Pressure spring		2	AVF D180S
5.7	Nylock nut	M5	6	DIN 985
5.8	Isolation plate		1	SPA101018A
5.9	Knurled ring	M5	6	DIN 6798A
5.10	Element without connector		1	SPA 141019A
5.11	Thermostat		1	SPAPEN 03-02
5.12	Silicone	Round 25 mm.	1	SPA14050
5.13	Countersunk screw	M5 X 40	4	DIN 7991
5.14	Temperature sensor	PT1600	1	SPAMA 03-04/4
5.15	Countersunk screw	M5 X 60	2	DIN 7991
5.16	Sensor shield		1	SPA 100107B
5.17	Heater shield		1	SPA 100107C
5.18	Closing ring	M6	2	DIN 125A
5.19	Socket head screw	M3 X 12	1	DIN 912
5.20	Connector	Ceramic	2	SPAPEN 03-04
5.21	Nut	M3	1	DIN 985
5.25	Pressure spring	D118	2	SPA14025
5.26	Safety rack		1	SPA14020
5.27	Safety switch		2	SPA14021
5.28	Safety arm		2	SPA14022
5.29	Plain bearing	ø7x5.5x6 mm	2	SPA14023



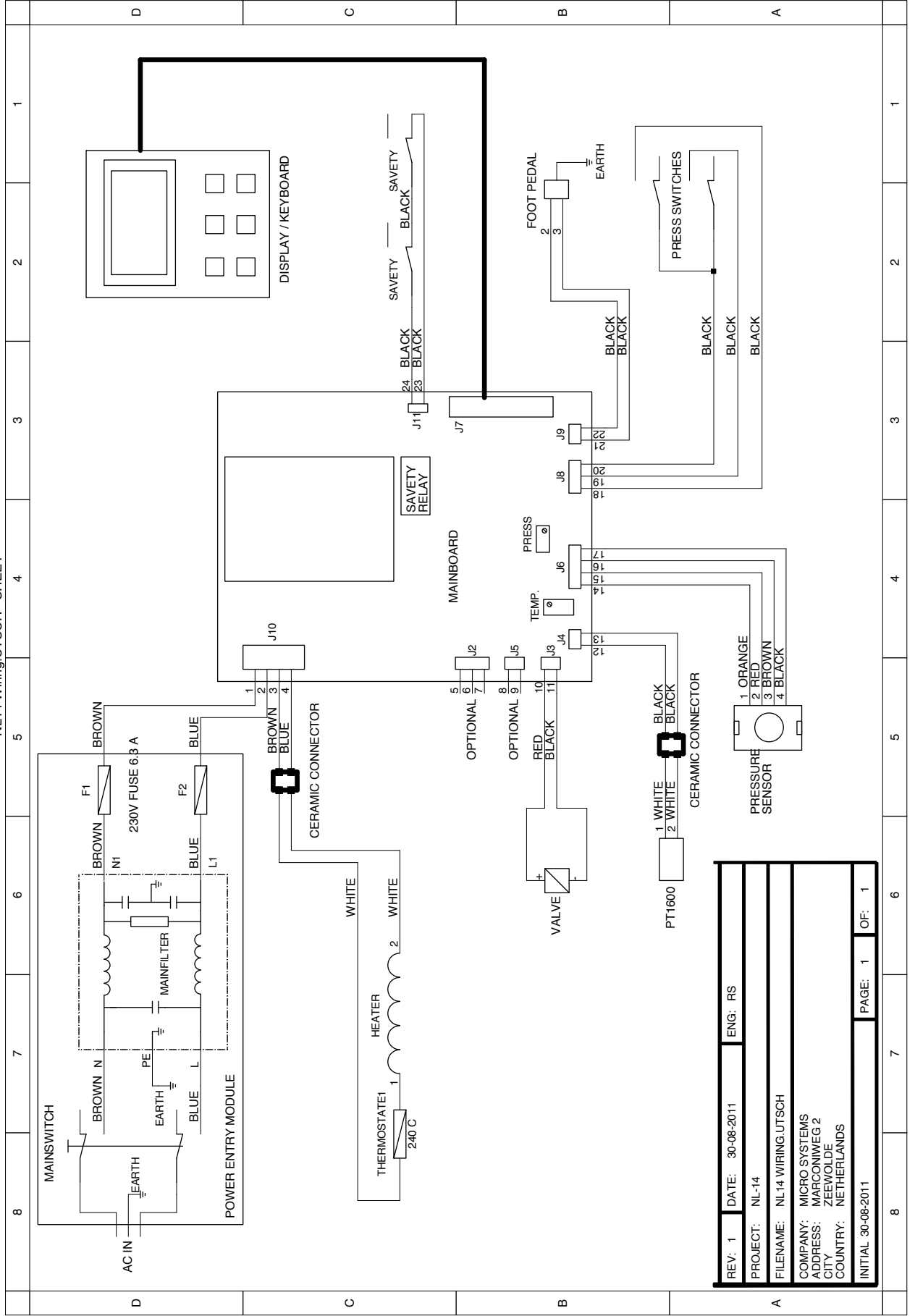


NO.	DESCRIPTION		QTY.	ART. NR.
6.1	Shoulder bolt	M10, Shaft 100	1	ISO7379
6.2	Shoulder bolt	M10, Shaft 70	1	ISO7379
6.3	Assembly 5			
6.4	Assembly 4			
6.5	Nut	M10	2	DIN985
6.6	Washer		2	DIN125/1A
6.7	Adjusting ring	12 mm	2	DIN705A/916

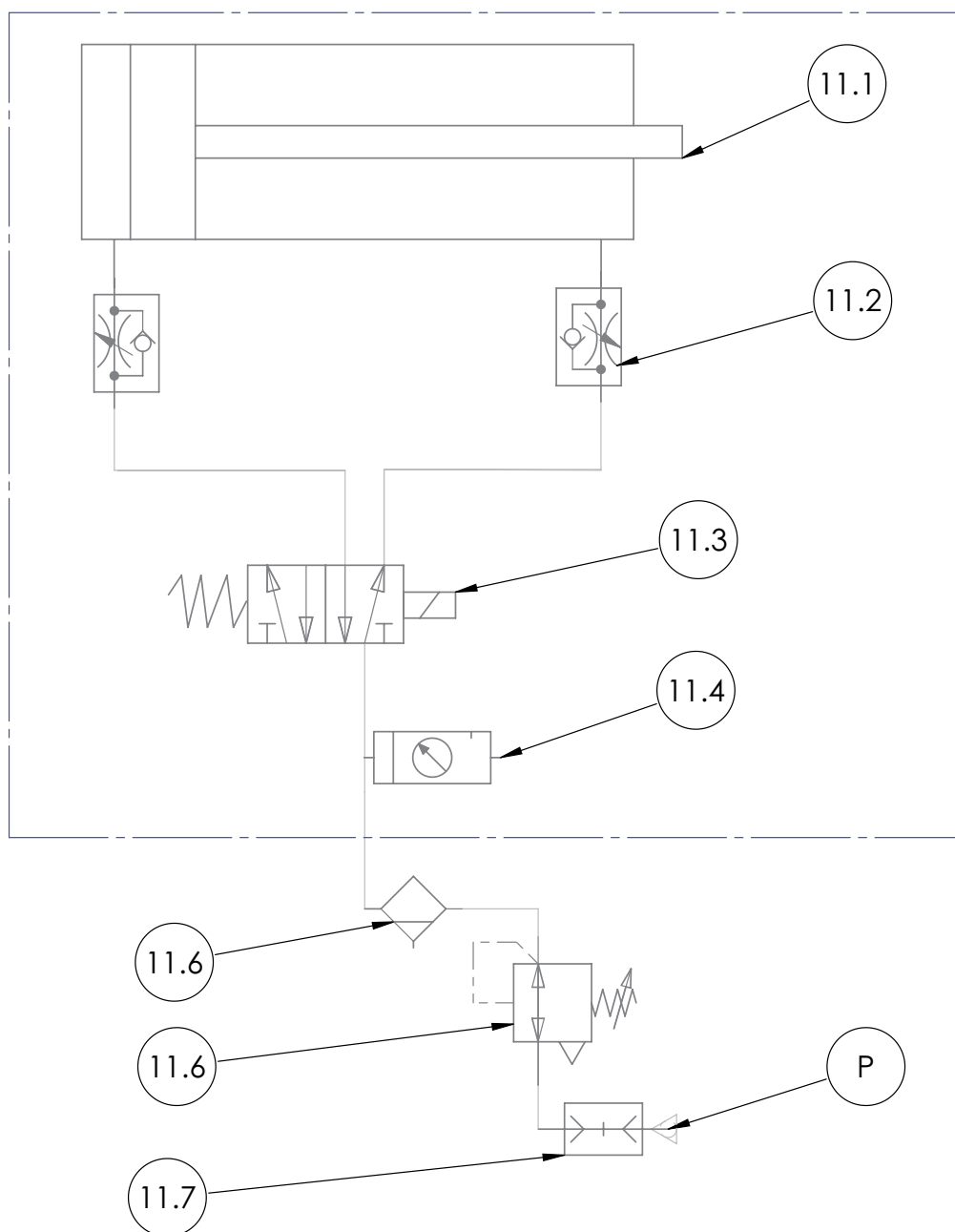


NO.	DESCRIPTION		QTY.	ART. NR.
7.1	Round head screw	M5 X 15	12	ISO 7380
7.2	Sealing arm cover		1	SPA14032
7.3	Main electronic board		1	SPA140408
7.4	Back cover		1	SPA14014
7.5	Water condenser and pressure regulator		1	SPA106009
7.6	Power entry		1	SPA105003
7.7	Bulkhead passage		1	SPA106021
7.8	Display		1	SPA14014
7.9	Display print		1	SPAMA0402
7.10	Push-button		2	SPA14055
7.11	Lower cover left side		1	SPA14030
7.12	Front finishing profile		1	SPA14034
7.13	Upper finishing profile		1	SPA14035
7.14	Lower cover right side		1	SPA114031
7.15	Cover plate		1	SPA14033

NL14 Wiring UTSCHE - SHEET



REV: 1	DATE: 30-08-2011	ENG: RS
PROJECT: NL-14		
FILENAME: NL14 WIRING.UTSCH		
COMPANY: MICRO SYSTEMS		
ADDRESS: MARCONI WEG 2		
CITY: ZEEWOLDE		
COUNTRY: NETHERLANDS		
INITIAL 30-08-2011	PAGE: 1	OF: 1



NO.	DESCRIPTION		QTY.	ART. NR.
11.1	Air cylinder	RT/57250/M/100	1	SPA14-025
11.2	Adjustment valve		2	SPA 106023
11.3	Air valve 2/5		1	SPA 106005
11.4	Pressure sensor		1	SPAMA 06-13
11.6	Water condenser			
11.6	Pressure regulator		1	SPA 106008
11.7	Quick fitting		1	SPA 105015

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